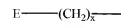
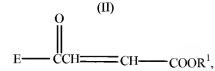
IN THE CLAIMS:

1. (Previously Presented) A nanocomposite comprising clay and an elastomer comprising C_2 to C_{10} olefin derived units; wherein the elastomer also comprises functionalized monomer units described by the following groups (I), (II), (III), (IV) and (V) pendant to the elastomer, E:

(I)



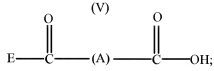
(II)



(III)

(IV)

(V)



wherein R^1 is selected from hydrogen, C_1 to C_{20} alkyls, alkenyls or aryls, substituted C_1 to C_{20} alkyls, alkenyls or aryls; wherein the value of x ranges from 0 to 20; and wherein the value of y ranged from 0 to 20; and wherein the value of z ranges from 1 to 20; and wherein "A" is an aryl group, either substituted or not wherein the clay has been treated with an exfoliating agent to form an exfoliated clay and wherein the nanocomposite has a permeation coefficient of less than 7 mm·cc/(m^2·day·mmHg) at 40° C.

2. (Original) The nanocomposite of Claim 1, wherein the elastomer also comprises monomer units selected from styrenic derived units and substituted styrenic derived units.

3. (Original) The nanocomposite of Claim 2, wherein the styrenic units are functionalized.

4. (Cancelled)

5. (Original) The nanocomposite of Claim 1, wherein the olefin is selected from one or more of isobutylene, isobutene, isoprene, cyclopentadiene, 2-methyl-1-butene, 3-methyl-1-butene, 2-methyl-2-butene, and 4-methyl-1-pentene, ethylene, propene, 1-butene, 1-hexene, and 1-octene.

6. - 8. (Cancelled)

9. (Original) The nanocomposite of Claim 1, wherein the elastomer also comprises multiolefin derived units.

10. (Original) The nanocomposite of Claim 1, wherein the elastomer is selected from any one or a mixture of natural rubber, poly(isobutylene-*co*-isoprene), polybutadiene, poly(styrene-*co*-butadiene) rubber, poly(isoprene-*co*-butadiene), poly(styrene-isoprene-butadiene), star-branched polyisobutylene rubber, poly(isobutylene-*co*-*p*-methylstyrene), ethylene-propylene-alkylstyrene rubber, ethylene-propylene-styrene rubber.

11. (Original) The nanocomposite of Claim 1, wherein the functionalized units are present on the elastomer from 0.01 wt% to 15 wt% of the elastomer.

12. -13. (Cancelled)

14. (Original) The nanocomposite of Claim 1, wherein the clay is present from 0.1 wt% to 50 wt% of the nanocomposite.

15. (Cancelled)

16. (Original) The nanocomposite of Claim 1, also comprising a filler selected from carbon black, modified carbon black, silica, precipitated silica, and blends thereof.

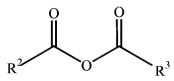
17. – 18. (Cancelled)

19. (Original) The nanocomposite of Claim 1, also comprising a secondary rubber selected from natural rubber, polybutadiene rubber, nitrile rubber, silicon rubber, polyisoprene rubber, poly(styrene-*co*-butadiene) rubber, poly(isoprene-*co*-butadiene) rubber, styrene-isoprene-butadiene rubber, ethylene-propylene rubber, brominated butyl rubber, chlorinated butyl rubber, halogenated isoprene, halogenated isobutylene copolymers, polychloroprene, star-branched polyisobutylene rubber, star-branched brominated butyl rubber, poly(isobutylene-*co*-isoprene) rubber; halogenated poly(isobutylene-*co*-*p*-methylstyrene), ethylene-propylene rubber and mixtures thereof.

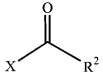
20. (Previously Presented) An article comprising the nanocomposite of Claim 1, the article being a tire innerliner or an innertube.

21. (Cancelled)

22. (Previously Presented) A method of forming a nanocomposite comprising contacting clay treated with an exfoliating agent, an elastomer, a grafting promoter, and at least one functionalizing compound, wherein the elastomer comprises C_2 to C_{10} olefin derived units and wherein the functionalizing compound is selected from the group consisting of CO_2,



, and



wherein R^2 and R^3 are the same or different and are selected from hydrogen, C_1 to C_{10} alkyls, alkenyls and aryls, hydroxyl, and C_1 to C_{10} alkoxys, wherein R^2 and R^3 may form a ring structure; and wherein X is selected from hydroxyl, halides, and alkoxy groups.

23. (Previously Presented) The method of Claim 22, wherein the method of contacting comprises one of the following methods: 1) the elastomer is first contacted with the functionalizing compound, followed by contacting with the clay, 2) the elastomer, clay, and acid functionalizing compound are contacted simultaneously, and 3) the elastomer and functionalizing compound are melt blended wherein the nanocomposite has a permeation coefficient of less than 7 mm·cc/(m ^{2} ·day·mmHg) at 40° C.

24. - 28. (Cancelled)

29. (Currently amended) The method of Claim 22, wherein the functionalizing compound is selected from the group consisiting of succinic anhydride, maleic anhydride, phthalic anhydride, glutaric anhydride citraconic anhydride, itaconic anhydride, and other cyclic anhydrides, succinyl chloride, glutaryl chloride, itaconyl chloride, malonyl chloride, adipoyl chloride, diethylmalonyl dichloride, 3-methyladipoyl chloride, pimeloyl chloride, suberoyl chloride, azelaoyl chloride, sebacoyl chloride, isophthaloyl dichloride, phthaloyldichloride, and terephthaoyl chloride.

30. (Original) The method of Claim 22, wherein the elastomer also comprises monomer units selected from styrenic derived units and substituted styrenic derived units.

31. (Original) The method of Claim 22, wherein the olefin is selected from one or more of isobutylene, isobutene, isoprene, cyclopentadiene, 2-methyl-1-butene, 3-methyl-1-butene, 2-methyl-2-butene, and 4-methyl-1-pentene, ethylene, propene, 1-butene, 1-hexene, and 1-octene.

32. (Original) The method of Claim 30, wherein the styrene derived units are present from 1 to 15 wt% of the elastomer.

33. – 35. (Cancelled)

36. (Original) The method of Claim 22, wherein the elastomer is selected from any one or a mixture of natural rubber, poly(isobutylene-*co*-isoprene), polybutadiene, poly(styrene-*co*-butadiene) rubber, poly(isoprene-*co*-butadiene), poly(styrene-isoprene-butadiene), star-branched polyisobutylene rubber, poly(isobutylene-*co*-*p*-methylstyrene), ethylene-propylene-alkylstyrene rubber, ethylene-propylene-styrene rubber.

37. (Original) The method of Claim 22, wherein the elastomer is functionalized by contacting with the functionalizing compound, wherein the functional groups are present on the elastomer from 0.01 wt% to 15 wt% of the elastomer.

38. (Previously Presented) The method of Claim 22, wherein the clay has been treated with an exfoliating agent to form an exfoliated clay wherein the exfoliating agent is selected from ammonium ion, alkylamines, alkylammonium ion (primary, secondary, tertiary and quaternary), phosphonium or sulfonium derivatives of aliphatic, aromatic or

arylaliphatic amines, phosphines and sulfides and blends thereof.

39. (Cancelled)

40. (Original) The method of Claim 22, wherein the clay is present from 0.1 wt% to 50 wt% of the nanocomposite.

41. (Cancelled)

42. (Original) The method of Claim 22, also comprising a filler selected from carbon black, modified carbon black, silica, precipitated silica, and blends thereof.

43. - 44. (Cancelled)

45. (Original) The method of Claim 22, also comprising a secondary rubber selected from natural rubber, polybutadiene rubber, nitrile rubber, silicon rubber, polyisoprene rubber, poly(styrene-*co*-butadiene) rubber, poly(isoprene-*co*-butadiene) rubber, styrene-isoprene-butadiene rubber, ethylene-propylene rubber, brominated butyl rubber, chlorinated butyl rubber, halogenated isoprene, halogenated isobutylene copolymers, polychloroprene, star-branched polyisobutylene rubber, star-branched brominated butyl rubber, poly(isobutylene-*co*-isoprene) rubber; halogenated poly(isobutylene-*co*-*p*-methylstyrene), ethylene-propylene rubber and mixtures thereof.

46. - 72. (Cancelled)

73. (Previously Presented) A tire innerliner comprising the material made by the method of claim 22.

74. (Previously Presented) An innertube liner comprising the material made by the method of claim 22.